

Austria became involved in World War II the year before it started. During the evening of March 11, 1938 German troops crossed the Austrian Border. Austria became the so-called “Ostmark” (German Province), and remained so for seven years to come.

On July 4, the four allies agreed on the zones of occupation. The situation in Vienna, the capital of Austria, initially was very similar to that of Berlin. Vienna was surrounded by the Soviet zone, and divided into four sectors. The Western Allies entered their sectors in August, 1945. As every tourist knows, the center of Vienna with its historical buildings became the "International Sector" with a monthly change of occupation troops.

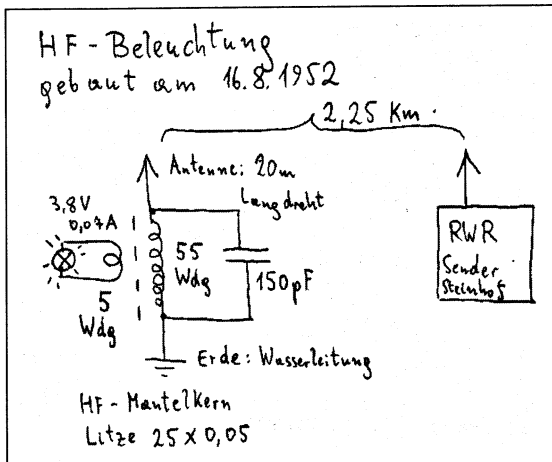
After the end of World War II, the relationship between the Western Allies and the Soviet Union began to deteriorate. From June 24, 1948 to May 12, 1949, the Soviets blocked all road and rail connections between West Germany and the three western zones of Berlin. The US Air Force and British Royal Air Force airlifted in something like two megatons of supplies during those months. Though there was never a Vienna crisis similar to the Berlin crisis, the cold war raged in this city as well. The state of occupation ended on May 15, 1955, when the four Allies and Austria signed the State Treaty. The treaty prohibited the forming of

The original "Darling" article as it appeared in the January 29, 1955 issue of Funk Und Film.

a union between Austria and Germany, denied Austria the right to own or manufacture nuclear weapons or guided missiles, and obligated Austria to give the USSR part of its crude oil output for years to come.

All four former allies withdrew their troops from Austrian territory within a few months.

In the course of the battle for Vienna, the withdrawing German army blew up the transmitting site of Radio Vienna on April 13, 1945. On April 29, technicians of Radio Vienna managed



Original sketch for radio-powered lamp. Anonymous contributor is still embarrassed about the power he "stole" from U.S. taxpayers.

to be on the air again with two homebrew transmitters radiating just a few watts. The following day Radio Vienna was on the air for five hours.

On May 31, an improved homebrew transmitter powered a temporary antenna on the roof of the studio building with an unbelievable 1200 watts. This transmitter could be heard all over Vienna. Its only drawback was that, like the studio, it stood in the Soviet sector. On June 7, 1945 by order of the Soviet headquarters, Radio Vienna had to transmit a "Russian Hour" daily. As a countermeasure, the western Allies used their votes in the Allied Council to introduce the "Hour of the Allies." This was transmitted by radio stations all over Austria, giving all four Allies a chance to reach the population.

In the meantime, a young company named Frequentis, now a major manufacturer in the European Union, built a 10 kilowatt transmitter in the French sector. Transmissions of "Wien II" ("Vienna Two") started one day before Christmas Eve, 1945. In the US Zone of Austria, the US Information Service established the service "Rot-Weiss-Rot" (Red-White-Red), an allusion to the Austrian flag. The ten-kilowatt transmitter was situated on the fringe of the city, but still safely inside the US zone, between the world famous vineyards of Grinzing.

In Grinzing the US army also operated a one kilowatt transmitter. The "Blue Danube Network, abbreviated "BDN," transmitted in English. Officially intended for American GIs, it had a much larger audience. For the young generation in Austria, BDN was an acoustical gate to the western world.

The British called their radio agency "Alpenland" ("Alpine Country"). They began transmitting with the power of one kilowatt, from their headquarters in historical Schoenbrunn palace, on March 1, 1948.

So, by 1948 there were five radio stations operating within the residential area of Vienna—a situation quite new to the Viennese, who had to be content with one local radio station ever since broadcasting started a quarter century earlier. Both sides began to wage a propaganda war fought with words and songs.

The hostilities escalated on August 5, 1949, when the British Forces changed the frequency of their station "Alpenland" from 1285 kHz to 565 kHz. Now "Wien I," which transmitted from the soviet sector on 592 kHz, could not be received in a

large area of the Western zones.

The Austrian government was not happy with this state of affairs. Though Wien I was required to transmit Soviet propaganda for a considerable fraction of its on-the-air time, it was still the official radio station of the Austrian capital.

The Austrian government agencies involved initiated a protest. The polite but meaningless answering letter is preserved in the Austrian State Archive:

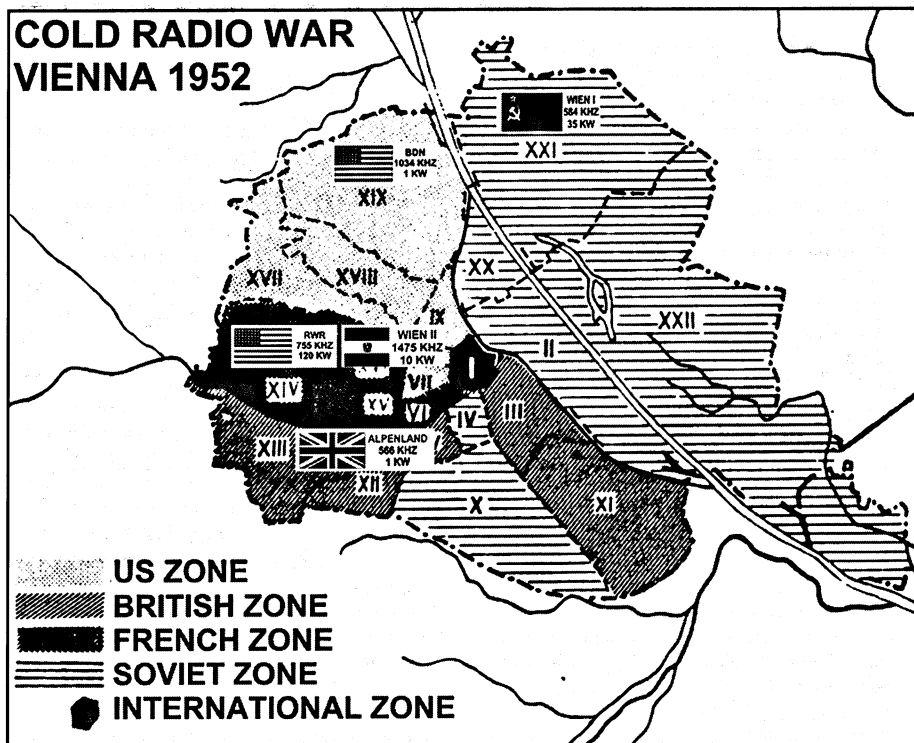
ACTING CHIEF SECRETARY,
HEADQUARTERS
ALLIED COMMISSION FOR AUSTRIA
(BRITISH ELEMENT)
VIENNA
BRITISH TROOPS IN AUSTRIA

SEC 7821
16th September, 1949

Sir,
I am instructed to acknowledge receipt of your letter B.M.ZI.426401949 of the 30th August, 1949, concerning the Schoenbrunn Transmitter.
I have the honour to be,
Sir, Your obedient Servant,
(illegible signature)

The British "Alpenland" station remained on 565 kHz, only 27 kHz away from "Wien I." The situation escalated on March 15, 1950, when the Copenhagen plan for the distribution of European broadcasting frequencies became effective.

COLD RADIO WAR VIENNA 1952



Locations of "cold war" transmitters in Vienna, 1952.

Now "Wien I" was on 584 kHz and "Alpenland" moved to 566 kHz, a mere 18 kHz away. On this day, the power of "Wien I" was increased to 35 kW. So far the cold radio war was between Great Britain and the Soviet Union.

The US Information Service does not seem to have thought much of this of frequency jostling. Instead they built their already-mentioned new transmitter in Vienna's French Zone. Two huge transmitting towers were erected in a residential suburb. On January 26, 1952 the "Rot-Weiss-Rot" station began to transmit on 755 kHz with a power of 120 kW. The perimeter of the installation was guarded by US marines. This powerful transmitter, located in an area of relatively high population density, remained in operation until the end of allied occupation on July 26, 1955.

Hot Crystal Radios

During those years of "cold radio war," practically every house in Vienna had a powerful medium wave transmitter nearby. Field strengths were overwhelming. Crystal radios worked wonderfully well. By a lucky coincidence those also were the years when germanium diodes ap-

peared on the market, becoming cheaper and cheaper like the computer chips of our days.

Of course best results were obtained by those living not too far from the "Rot-Weiss-Rot" transmitter operated by the US Army. With a suitable antenna, loudspeaker reception was no problem in much of the city. Some experimenters enjoyed getting something for nothing by having setting up radio powered lamps. Best results were obtained by using bicycle tail light bulbs, which drew approximately a quarter of a watt. Other hobbyists preferred small neon bulbs.

The author has succeeded in obtaining a copy of the original sketch for a "radio lamp" from an experimenter of those days. Now an elderly gentleman, this constructor wishes to stay anonymous. He has a troubled conscience because of having "stolen" electrical energy paid for by United States taxpayers—especially since he later became a US citizen.

The most remarkable crystal radio of that time was the "Darling." It was conceived by the editorial staff of *Funk und Film*, a weekly magazine of radio and movie news. The idea for the "Darling" came when the price for germanium diodes dropped to ATS 16.00, which is about US \$5.60

in the buying power of the year 2000. There were also ex German Army single earphones on the market for ATS 4.00 (US \$1.40).

That was all one that was needed for building the radio. One connected the germanium diode in parallel to the earphone coils and construction work was finished. Antenna and earth were connected to the earphone terminals. Holding the earth wire in one hand and throwing out a few yards of antenna wire resulted in perfect reception of a nearby station.

This simple device was the first truly portable radio available to all, from schoolboys to old age pensioners. Soon after publication in the January

19, 1955 issue of "Funk und Film," 10,000 of those single ear phones had been sold. In addition, there was a serious shortage of germanium diodes, which lasted for several months. With transistor radios still beyond the reach of ordinary enthusiasts, the "Darling" became the great grandfather of the Walkman.

"The more there were, the less there are." This old collector's rule applies to the "Darling" also. Genuine examples are rarities hardly ever found in Vienna's flea markets. The author wishes to thank the Austrian State Archive, especially Mr. Herbert Vopava, for the valuable help in compiling historical material on this subject. ☐

COMMUNICATIONS RECEIVER, *continued from page 22*

18.6 MHz in four bands. A distinctive feature of the Scott SLR (Super Low Radiation) series of marine receivers, including the SLR-M, is the combination of mechanical and circuit design improvements that attenuated radiation of the oscillator signal. Marvin Hobbs, Scott's design engineer, received a U.S. Patent on these improvements in 1943.

The antenna coils at the rear of the chassis are totally shielded, with even the coil switch shaft broken by an insulated coupling. The mixer and oscillator tubes and circuits are also enclosed. The metal 6K7 RF tube bridges between the two compartments, and shielded RF filters in the filament and HV lines complete the isolation. The result was that there was no detectable radiation beyond 25 feet, fulfilling the design requirements.

As received, the radio did not work, and my goal here was to restore this set to working condition while leaving the original components in place and doing as little modification as possible. A check of several of the electrolytic capacitors revealed that they were non-functional, and all would have to be replaced. The filter circuits are somewhat complex, and I studied the diagram carefully before proceeding.

Good exact replacements were not available, so I used the usual restorer's trick of wiring in small modern cartridge filters under the chassis—leaving the disconnected originals in place above the chassis. The new capacitors were mounted on small fiber stand offs soldered to the original terminals. The tubes checked out, and with the replacement of a couple of the original by-pass capacitors, the radio came alive. No alignment was found necessary, the components

having stood the test of time.

The five-inch PM monitor speaker sounded distorted, and will probably have to be reworked by one of the several speaker folks who do that sort of thing. While modern replacement speakers are plentiful, I elected to leave this one in, as it is of the highest quality and the construction is very distinctive. It is very rugged, and it a prominent part of the radio. A large Hallicrafters speaker sitting on top serves nicely for the time being.

The tuning was somewhat loose and, without bandspread, was critical for SSB and CW reception. Sensitivity was a bit low, but without careful antenna matching, and considering the mid-1930s technology and components, this was not surprising. The push-pull 25L6 audio-output, even with the low voltage of the AC-DC circuit, provided a respectable 1.5 Watts, enough to operate several external speakers.

Thousands of these radios were ordered during the war, and with the end of hostilities in 1945, many came on the surplus market. Included were many that were unused, and since Scott was left holding an inventory of new sets when the contract was canceled, it is likely that these also ended up in war surplus. Some years back the Scott WWII SLR radios were commonly seen at hamfests, but now they are a rare sight indeed. If one does show up, the price can be high. The Navy version of this receiver is known as the REE.

If you are a collector of military radios, one of the Scott SLR sets is a must. The sets represent a significant design accomplishment that met a perceived need during the very critical Battle of the Atlantic—a battle, incidentally, that was almost won by the Axis. ☐

Born in 1933, Joseph Braunbeck grew up in Vienna, Austria. He went to school in a time when the Nazi lawmakers decreed the death penalty for transmitting "regardless of age". Ignorant of this danger, he built crystal radios and spark transmitters as a nine year old schoolboy. After finishing the equivalent of highschool in 1951, he studied physics at the Vienna University of Technology. He did his doctor's thesis at the Infrared Laboratory of Perkin-Elmer Corporation on Lake Constance from 1958 to 1961.

From 1961 to 1963 he worked on Lasers and Nuclear Magnetic Resonance at the Varian Research Laboratory, Zurich, Switzerland. Then he became head of the Special Projects Laboratory of Telefunken in Konstanz, Lake Constance. All that time he had a secret love for the history of science & technology. In 1973 this love became public, when he joined the staff of the Museum of Industry and Technology on Vienna, Austria and a few years later when he started teaching history of communication technology at Vienna University of Technology.

Retired from the museum for age reasons, Joseph Braunbeck's main occupation is now writing books on little published chapters of the history of science & technology. In 1996 there appeared "Der Strahlende Doppeladler" on the history of the Austrian Nuclear Industry before 1918. He just has finished another book on the life of Felix Ehrenhaft - Albert Einstein's friend and counterpart.